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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,102	05/10/2001	Moon-Jung Ko	678-614 (P9725)	5815

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EXAMINER

DANIEL JR, WILLIE J

ART UNIT	PAPER NUMBER
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2686

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,102

Applicant(s)

KO, MOON-JUNG

Examiner

Willie J. Daniel, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-8 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: **Fig. 5** includes a step [512] that is not mentioned in the specification. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: The key pad (ref. 160) on page 4, line 31 is referred to as "**ref. 100**" on page 5, line 15.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (US 6,628,974) in view of Lee (US 6,163,682).

Regarding **Claim 1**, Lim teaches of an automatically and manually folded portable wireless terminal (1; Fig. 5) having at least a main body (3) and a sub-body (2) installed on the main body (3) so as to be opened and closed comprising: a first sensor (51) for sensing a complete opening of the sub-body from the main body (3); a second sensor (52) for sensing a complete closing of the sub-body onto the main body (3); an opening/closing device (11) for opening/closing the sub-body (2) in accordance with a control (5) of opening/closing of the sub-body (2) and having a motor (12) housed inside of the terminal (1); as discussed in abstract; column 4, lines 55 - column 5, line 24; column 6, lines 48 - column 7, line 49; column 8, lines 55-57; column 9, lines 29-31; and as shown in Figs. 1, 2, 5, 6, 10-12. The difference between Lim and the claimed is the monitoring of the current flow to the motor to determine an overload condition.

Lee teaches of a motor overcurrent monitoring section (14) for monitoring current flow to the motor to determine an overload (S20) condition of the motor; and a control device (2) for controlling operation of the motor in accordance with the overload (S20) condition as

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determined by the motor overcurrent monitoring section (14) when complete opening/closing of the sub-body is sensed by the first and the second sensors when the opening/closing device automatically opens/closes or retracts/extracts the sub-body, as discussed in column 4, lines 46-51; column 5, lines 10-24; column 6, line 48 - column 7, line 22; and as shown in Figs. 2 and 3.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Lim and Lee to have an automatically and manually folded portable wireless terminal (1) having at least a main body and a sub-body installed on the main body (3) so as to be opened and closed, comprising: a first sensor (51) for sensing a complete opening of the sub-body (2) from the main body (3); a second sensor (52) for sensing a complete closing of the sub-body (2) onto the main body (3); an opening/closing device for opening/closing the sub-body (2) in accordance with a control of opening/closing of the sub-body (2) and having a motor (12) housed inside of the terminal (1); a motor overcurrent monitoring section for monitoring current flow to the motor to determine an overload condition of the motor; and a control device for controlling operation of the motor in accordance with the overload condition as determined by the motor overcurrent monitoring section when complete opening/closing of the sub-body is sensed by the first and the second sensors (50) when the opening/closing device automatically opens/closes or retracts/extracts the sub-body (2).

The advantage of combining these teachings is to prevent the control device from being electrically and/or mechanically damaged (as suggested by Lee, column 3, lines 10-13).

Regarding **Claim 4**, Lim teaches of a method for controlling opening/closing of a sub-body (1) in a foldable portable wireless terminal (1) having at least a main body (3), a sub-body (1) installed on the main body (3) so as to be openable and closable, a first sensor (51) for sensing a complete opening of the sub-body from the main body, and a second sensor (52) for sensing a complete closing of the sub-body onto the main body (1), the method comprising the steps of: determining whether or not a complete opening/closing of the sub-body (2) is sensed by the first and the second sensors (50) during automatic opening/closing of the sub-body (2), as discussed in abstract; column 4, lines 55 - column 5, line 24; column 6, lines 48 - column 7, line 49; and as shown in Figs. 1, 2, 5, 6, 10-12. The difference between Lim and the claimed is the overload condition of a motor based on current supplied to the motor and controlling the operation in accordance with the overload.

Lee teaches of determining an overload (S20) condition of a motor based on current supplied to the motor and controlling the operation in accordance with the overload, as discussed in column 4, lines 46-51; column 5, lines 10-24; column 6, line 48 - column 7, line 17; and as shown in Figs. 2 and 3.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Lim and Lee to have a method for controlling opening/closing of a sub-body (2) in a foldable portable wireless terminal (1) having at least a main body, a sub-body (2) installed on the main body (3) so as to be openable and closable, a first sensor (51) for sensing a complete opening of the sub-body (2) from the main body, and a second sensor (52) for sensing a complete closing of the sub-body onto the main body, the method comprising the steps of: determining whether or not a

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complete opening/closing of the sub-body (2) is sensed by the first and the second sensors (50) during automatic opening/closing of the sub-body; determining an overload condition (S20) of a motor housed inside of the terminal (1) based on current supplied to the motor (12) if incomplete opening/closing of the sub-body (2) is sensed; and controlling operation of the motor (12) in accordance with the determined overload condition (S20).

The advantage of combining these teachings is to prevent the control device from being electrically and/or mechanically damaged (as suggested by Lee, column 3, lines 10-13).

Regarding **Claim 5**, the combination of Lim and Lee further teach to have the method of claim 4, wherein the determination of the overload (S20) condition of the motor (12) is made based on a voltage difference corresponding to a current difference between the current supplied to the motor (12) in normal operation and the current supplied to the motor (12) in the overload (S20) condition, as discussed in Lee, column 4, lines 46-51; column 5, lines 10-24; column 6, line 48 - column 7, line 22; and as shown in Figs. 2 and 3.

Regarding **Claim 6**, Lim teaches a method for controlling opening/closing of a sub-body (2) in a foldable portable wireless terminal (1) having a main body (3) and a sub-body (2) installed on the main body (3) so as to be openable and closable, the method comprising the steps of: operating a motor (12) for automatically opening/closing the sub-body in accordance with an input by a user, as discussed in abstract; column 4, lines 55 - column 5, line 24; column 8, lines 53-57; column 9, lines 29-31; and as shown in Figs. 5 and 12. The difference between Lim and the claimed is the overload condition of the motor (12) when

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opening/closing the sub-body (2) base on current and controlling the operation of the motor based on the overload.

Lee teaches of overload condition of the motor based on current and controlling the operation of the motor based on the overload (S20), as discussed in column 4, lines 46-51; column 5, lines 10-24; column 6, line 48 - column 7, line 22; and as shown in Figs. 2 and 3.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Lim and Lee to have a method for controlling opening/closing of a sub-body (2) in a foldable portable wireless terminal (1) having a main body (3) and a sub-body (2) installed on the main body (3) so as to be openable and closable, the method comprising the steps of: operating a motor (12) for automatically opening/closing the sub-body in accordance with an input by a user; determining an overload condition of the motor (12) for opening/closing the sub-body based on a voltage difference corresponding to a current difference between the current supplied to the motor in a normal operation and the current supplied to the motor in the overload condition; and controlling operation of the motor for opening/closing or retracting/extracting the sub-body in accordance with the determined overload condition.

The advantage of combining these teachings is to prevent the control device from being electrically and/or mechanically damaged (as suggested by Lee, column 3, lines 10-13).

Regarding **Claim 7**, Lim teaches a method for controlling opening/closing of a sub-body in a foldable portable wireless terminal (1) having at least a main body (3), a sub-body (2) installed on the main body (3) so as to be openable and closable, a first sensor (51) for

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sensing a complete opening of the sub-body from the main body, and a second sensor (52) for sensing a complete closing of the sub-body onto the main body, as discussed in abstract; column 4, lines 55 - column 5, line 24; column 6, lines 48 - column 7, line 49; and as shown in Figs. 1, 2, 5, 6, 10-12. The difference between Lim and the claimed is controlling the opening/closing repeatedly a predetermined number of times.

Lee teaches of controlling the opening/closing or retracting/extracting repeatedly a predetermined number of times (S24), as discussed in column 6, line 48 - column 7, line 22; and as shown in Figs. 3 and 4B.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Lim and Lee to have a method for controlling opening/closing or retracting/extracting of a sub-body (2) in a foldable portable wireless terminal (1) having at least a main body (3), a sub-body installed on the main body so as to be openable and closable, a first sensor (51) for sensing a complete opening of the sub-body from the main body, and a second sensor (52) for sensing a complete closing of the sub-body onto the main body, the method comprising the steps of: determining an overloaded state of a motor housed inside of the terminal based on the current supplied to the housed motor if incomplete opening/closing of the sub-body is sensed; controlling opening/closing of the sub-body repeatedly as many times as predetermined if incomplete opening/closing of the sub-body has been sensed and the housed motor is in an overloaded state; and returning the sub-body to an initial state if incomplete opening/closing or retracting/extracting of the sub-body (2) is sensed and the overloaded state continues even after the controlling has been repeated the predetermined times.

The advantage of combining these teachings is to prevent the control device from being electrically and/or mechanically damaged (as suggested by Lee, column 3, lines 10-13).

Regarding **Claim 8**, Lim teaches a method for controlling opening/closing of a sub-body in an automatically and manually folded portable wireless terminal (1) having at least a main body (3), a sub-body (2) installed on the main body (2) so as to be openable and closable, and a sensor (50) for sensing a complete opening of the sub-body from the main body, the method comprising the steps of: determining whether or not the sensor (50) senses a complete opening of the sub-body during automatic opening as discussed in abstract, column 4, lines 55 - column 5, line 24; column 6, lines 48 - column 7, line 49; and as shown in Figs. 1, 2, 5, 6, 10-12. The difference between Lim and the claimed is overload based on current supplied to the motor, controlling opening/closing a predetermined number of time during overloaded state, and ceasing the operation based on the overloaded state.

Lee teaches of determining overload (S20) based on current supplied to the motor, controlling opening/closing or retracting/extracting a predetermined (S24) number of times during overloaded state, and ceasing the operation based on the overloaded state, as discussed in column 6, line 48 - column 7, line 22; and as shown in Figs. 3 and 4B.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Lim and Lee to have a method for controlling opening/closing of a sub-body in an automatically and manually folded portable wireless terminal (1) having at least a main body (3), a sub-body (2) installed on the main body (3) so as to be openable and closable, and a sensor (50) for sensing a complete opening

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of the sub-body (2) from the main body (3), the method comprising the steps of: determining whether or not the sensor (50) senses a complete opening of the sub-body (2) during automatic opening; determining an overloaded state of a motor housed inside of the terminal based on current supplied to the housed motor (12) if incomplete opening is sensed by the sensor (50); controlling opening of the sub-body (2) as many times as predetermined if incomplete opening is sensed and the housed motor (12) is determined to be in an overloaded (20) state; and ceasing operation of the housed motor (12) if incomplete opening of the sub-body is sensed and the overloaded state of the housed motor (12) continues even after controlling the opening of the sub-body the predetermined times (S24).

The advantage of combining these teachings is to prevent the control device from being electrically and/or mechanically damaged (as suggested by Lee, column 3, lines 10-13).

Allowable Subject Matter

4. **Claims 2 and 3** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **Claim 2**, the applied references fail to disclose or render the obvious, the automatically and manually folded portable wireless terminal of claim 1, wherein the motor overcurrent monitoring section comprises: a first node connected to a battery output line for applying a first voltage corresponding to the battery voltage to a first input end of the control device; a second node connected between the first node and the motor for applying a second voltage, which corresponds to a current supplied to the motor, to a second input end of the control device; and a current sensing resistor located between the first node and the second node for sensing the current supplied to the motor from the first node through the second node.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- a. **Wilcox et al. (US 5,649,309)** discloses "*Wireless Communication Device Having an Axially Aligned Cover Release Mechanism*".
- b. **Martensson (US 5,151,946)** discloses "*Variable Configuration Portable Telephone*".

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Willie J. Daniel, Jr. whose telephone number is (703) 305-8636. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-5424.

WJD,JR/wjd,jr
24 October 2003


NGUYEN T. VO
PRIMARY EXAMINER